

# PREFACE

This handbook of techniques for solving a variety of seismic rehabilitation problems and its companion publication on the seismic evaluation of existing buildings reflect basic input provided by two organizations recognized for their retrofit evaluation and design experience as well as the results of a consensus development activity carried out by the Building Seismic Safety Council (BSSC). The preliminary version of this document, the *NEHRP Handbook of Techniques for the Seismic Rehabilitation of Existing Buildings*, was developed for FEMA by URS/John A. Blume and Associates, Engineers (URS/Blume). A companion volume, the *NEHRP Handbook for the Seismic Evaluation of Existing Buildings*, for which a preliminary version was developed for FEMA by the Applied Technology Council (ATC), provides a method for evaluating existing buildings to identify those that are likely to be seismically hazardous. The BSSC project, initiated at the request of FEMA in October 1988, has focused on identification and resolution of technical issues in and appropriate revision of the two handbooks by a 22-member Retrofit of Existing Buildings (REB) Committee composed of individuals possessing expertise in the various subjects needed to address seismic rehabilitation.

The balloting of the two handbooks was conducted on a chapter-by-chapter basis in September and October 1991. Although all parts of both handbooks passed the ballot by the required two-thirds majority, the Board, after reviewing the ballot results in November 1991, concluded that many of the comments were sufficiently serious to warrant further consideration and that the REB Committee should have the opportunity to review the ballot comments and propose changes for reballoting in response to those considered persuasive. The REB Committee members then were asked to review the ballot comments and forward the results of their review to a member of the REB Executive Committee. In turn, the Executive Committee met in early January 1992 to consider committee member suggestions and prepare responses to the ballot comments and proposals for revision of the handbooks. The Executive Committee recommendations for reballoting were presented to and accepted by the BSSC Board. The reballot proposals were developed and submitted to the BSSC member organizations for balloting in late January 1992. All the reballot proposals passed but several issues raised in comments were considered and resolved at a special meeting of the Council in February 1992.

The BSSC REB Committee and Board of Direction believe that these two handbooks will prove to be beneficial to those who are involved in or who need to begin exploring the seismic evaluation and rehabilitation of existing buildings, a topic of growing importance especially in the eastern and midwestern parts of the nation where little such work has been done. It is hoped that experience with the application of these handbooks will generate feedback that can serve as the foundation for the enhancement of future documents dealing with the seismic rehabilitation of existing buildings. To this end, a User Comment Form is included in the handbooks to stimulate those who work with the handbooks to report their experiences. In addition, since some of the issues raised by BSSC member organizations during the balloting of the handbooks bear on the need for future enhancement of the information presented, a summary of the results of the BSSC balloting including all comments received and committee decisions/responses to those comments is available to interested readers upon request to the BSSC.

The Board wishes to emphasize that these documents are intended to serve as informational "points of departure" for the professional involved in seismic evaluation and rehabilitation. They cannot yet be considered all inclusive nor are they intended to serve as the basis for regulation. Rather, it is hoped that both will prove to be of sufficient value to warrant expansion and refinement.

Considerable effort has gone into the development of this handbook. On behalf of the BSSC Board, I wish to acknowledge the organizations and individuals who have participated. The Board is particularly grateful for the extensive contribution of time and expertise from those serving on its Retrofit of Existing Buildings Committee of volunteer experts:

Daniel Shapiro, SOH and Associates, San Francisco, California (Committee Chairman)  
M. Agabian, University of Southern California, Los Angeles, California  
Christopher Arnold, Building Systems Development, San Mateo, California  
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Pamalee Brady, U.S. Army Construction Engineering, Champaign, Illinois  
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John Canestro, City of Orinda, Pleasanton, California  
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Needless to say, the Council's project would not have been successful without the developmental work and cooperation of the URS/Blume project staff: R. Martin Czarnecki, Principal-in-Charge; John F. Silva, Project Manager; David M. Bergman, Project Engineer; Joseph P. Nicoletti, Consultant; Walter N. Mestrovich; and Kit Wong.

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Finally, I would be remiss if I did not acknowledge the effort of the BSSC staff: James R. Smith, Executive Director; O. Allen Israelsen, Professional Engineer and Project Manager; Claret M. Heider, Technical Writer-Editor; and Karen E. Smith, Administrative Assistant.

Gerald Jones  
Chairman, BSSC Board of Direction

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